1. Solve the equation for x and choose the interval that contains x (if it exists).

$$6 = \sqrt[4]{\frac{21}{e^{8x}}}$$

A. $x \in [-0.55, -0.4]$

B. $x \in [-0.19, 0.29]$

C. $x \in [-3.6, -3.21]$

D. There is no Real solution to the equation.

E. None of the above.

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2. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{-2x+2} = \left(\frac{1}{343}\right)^{-3x-5}$$

A. $x \in [-8.2, -6]$

B. $x \in [-1.5, -1]$

C. $x \in [24.7, 26.8]$

D. $x \in [-1.2, 0.6]$

E. There is no Real solution to the equation.

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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+2} + 1$$

A. $[a, \infty), a \in [-2.2, -0.3]$

B. $(-\infty, a), a \in [-0.9, 1.2]$

C. $(-\infty, a], a \in [-0.9, 1.2]$

D. $(a, \infty), a \in [-2.2, -0.3]$

E. $(-\infty, \infty)$

4. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{5x-3} = 64^{2x+2}$$

A. $x \in [0.67, 3.67]$

B. $x \in [3.38, 6.38]$

C. $x \in [-55.59, -46.59]$

D. $x \in [-21.48, -16.48]$

E. There is no Real solution to the equation.

5. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x - 4) - 9$$

A. $(-\infty, a], a \in [6, 17]$

B. $(a, \infty), a \in [3, 8]$

C. $[a, \infty), a \in [-11, -8]$

D. $(-\infty, a), a \in [-8, -2]$

E. $(-\infty, \infty)$

6. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x + 8) + 8$$

A. $(-\infty, a], a \in [-9, -1]$

B. $(-\infty, a), a \in [5, 12]$

C. $[a, \infty), a \in [5, 12]$

D. $(a, \infty), a \in [-9, -1]$

E. $(-\infty, \infty)$

7. Solve the equation for x and choose the interval that contains x (if it exists).

$$24 = \sqrt[3]{\frac{10}{e^{3x}}}$$

A. $x \in [-24.82, -24.05]$

B. $x \in [-2.95, -2.19]$

C. $x \in [-1.73, -1.18]$

D. There is no Real solution to the equation.

E. None of the above.

8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(-2x + 6) + 4 = 3$$

A. $x \in [3.3, 3.56]$

B. $x \in [2.61, 3.43]$

C. $x \in [-10.57, -9.06]$

D. $x \in [-2.51, -2.22]$

E. There is no Real solution to the equation.

9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-4x + 6) + 5 = 2$$

A. $x \in [-2.5, 6.5]$

B. $x \in [-5.75, -2.75]$

C. $x \in [56.25, 60.25]$

D. $x \in [61.25, 66.25]$

E. There is no Real solution to the equation.

10. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x-4} - 8$$

A. $(-\infty, a), a \in [-8, -7]$

B. $(a, \infty), a \in [7, 12]$

C. $(-\infty, a], a \in [-8, -7]$

D. $[a, \infty), a \in [7, 12]$

E. $(-\infty, \infty)$